

CLAIMS

1. A process for producing a vinyl chloride-based polymer, wherein a suspension polymerization of either vinyl chloride monomer, or a mixture of vinyl chloride monomer and another copolymerizable monomer, is conducted in a polymerization vessel fitted with a reflux condenser, said process comprising the steps of:

(A) adding to a reaction mixture a high-activity, oil-soluble polymerization initiator, with a 10-hour half life temperature of no more than 40°C at a concentration of 0.1 mol/L in benzene, for a specified time within a period from commencement of heat removal using said reflux condenser through to completion of polymerization, and

(B) adding an antioxidant either continuously or intermittently to said reaction mixture at least during a period from commencement of addition of said high-activity, oil-soluble polymerization initiator through to completion of said addition.

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2. The process according to claim 1, wherein a quantity added of said high-activity, oil-soluble polymerization initiator is within a range from 0.0001 to 0.2 parts by mass per 100 parts by mass of said monomer or monomer mixture.

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3. The process according to either claim 1 or 2, wherein a rate of addition of said high-activity, oil-soluble polymerization initiator is within a range from 0.3 to 5% by mass of an entire quantity of said initiator per minute.

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4. The process according to any one of claims 1 through 3, wherein a quantity added of said antioxidant is within a range from 0.00001 to 0.005 parts by mass per 100 parts by mass of said monomer or monomer mixture.

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5. The process according to any one of claims 1 through 4, wherein said antioxidant is added through a supply pipe for said high-activity, oil-soluble polymerization initiator.

6. The process according to any one of claims 1 through 5, wherein addition of

said high-activity, oil-soluble polymerization initiator is commenced either simultaneously with commencement of heat reduction using said reflux condenser, or within 10 minutes of said commencement of heat reduction, and is completed prior to a polymerization conversion rate reaching 75%.

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7. The process according to any one of claims 1 through 6, wherein said copolymerizable monomer is at least one selected from the group consisting of vinyl esters, acrylate esters, methacrylate esters, olefins, maleic anhydride, acrylonitrile, styrene, and vinylidene chloride.

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8. The process according to any one of claims 1 through 7, wherein said high-activity, oil-soluble polymerization initiator is at least one selected from the group consisting of acetyl cyclohexylsulfonyl peroxide, isobutyryl peroxide, α -cumyl peroxyneodecanoate, diisopropylbenzene, diallyl peroxy carbonate, and 3-hydroxy-1,1-dimethylbutyl peroxyneodecanoate.

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9. The process according to any one of claims 1 through 8, wherein said antioxidant is at least one selected from the group consisting of phenol-based compounds, phosphorus compounds, sulfur compounds, and nitrogen-based compounds.

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10. The process according to any one of claims 1 through 9, wherein said antioxidant is at least one selected from the group consisting of 2-t-butylphenol, 2-t-amylphenol, 2,4-dimethyl-6-tert-butylphenol, 2,6-diisopropyl-p-cresol, n-octadecyl-3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate, triethylene glycol-bis[3-(3-t-butyl-5-methyl-4-hydroxyphenyl) propionate], t-butylhydroxyanisole, 4,4'-butyldienebis(3-methyl-6-t-butylphenol), 2,2'-methylene-bis(4-methyl-6-t-butylphenol), 2,2'-methylene-bis(4-ethyl-6-t-butylphenol), 2,6-di-t-butyl-4-methylphenol, 2,6-di-t-butyl-4-ethylphenol, 2,6-di-t-butyl-4-hydroxymethylphenol, 4,4'-methylenebis(2,6-di-t-butylphenol), 4,4'-thiobis(6-t-butyl-m-cresol), tetrakis[methylene-3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate]methane, cyclic neopentanetetraylbis(octadecylphosphite), dilauryl thiodipropionate, dimyristyl thiodipropionate, distearyl thiodipropionate, alkali metal sulfates, alkali metal hydrogensulfites, alkali metal thiosulfates, N,N-

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diethylhydroxylamine, and sodium nitrite.